

REMARKS

Claims 1-4, 6-18 and 20-21 are now pending in the application. Claims 5 and 19 have been cancelled herein, and claims 20 and 21 have been added herein. Minor amendments have been made to the claims to overcome the rejections of the claims under 35 U.S.C. § 112. The amendments to the claims contained herein are not considered to represent a narrowing amendment. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claims 5-7 and 19 sand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. With respect to claims 5-7, the Examiner states that the term "thickness" as used herein is unclear and thus indefinite. Applicant has cancelled claims 5 and 19 in favor of claims 20 and 21 which recite a first width of the leg portion and a second width of the barrier portion which is less than said first width. Applicants submit that the description in the specification set forth in paragraph 52 provides adequate support and clarity for these claims. With respect to claim 19, the Examiner states that the term "plurality of coolant flow channels" lacks antecedent basis. Claim 21 now depends from claim 18 which provides proper antecedent basis for this limitation. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection under Section 112, second paragraph.

REJECTION UNDER 35 U.S.C. § 102 AND § 103

Claims 1, 3, 13, 15 and 17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Cipollini (U.S. Pat. No. 6,258,476). Claims 2, 4, 9, 10, 14, 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cipollini. These rejections are respectfully traversed.

Applicants submit that Cipollini teaches the use of a treated carbon distribution plate (4) to draw water away from the cathode face and towards an anode face of the membranes of a fuel cell in order to minimize membrane drying. The distribution plate of Cipollini contains open channels (8) which transport the reactant gases transversely through the fuel cell to the face of a porous cathode/anode catalyst (3,7). The pores of the porous carbon distribution plate have a fine pore size (in the range of about 1 to about 2 microns) which are at least partially loaded with metal particles or fibers to enhance wettability to better remove water from the reactive cathode area and to minimize anode side membrane drying. As water flows through this transport layer, the pores are filled with water, thereby making them gas impermeable. In this regard, gases are not intended to and cannot freely flow through the distribution plate.

In contrast, the present invention uses a gas distribution layer having a plurality of porous gas reactant channels in place of the prior art of plates with open channels cut or otherwise formed therein. With respect to claim 1, Applicants submit that the cited reference does not expressly or implicitly teach "a plurality of porous, reactant gas flow channels extending transversely through [a] gas distribution layer in a generally parallel orientation, a first face of said [] gas distribution layer confronting said first catalytic

layer such that said plurality of porous, reactant gas flow channels are in fluid communication with said first catalytic layer.”

With respect to the claims which depend from claim 1, Applicants submit that the prior art fails to teach the specific structure or properties recited therein. While Applicants generally agree with the Examiner’s statement that one of ordinary skill in the art will recognize that porosity effects gas permeability, they disagree that it would have been obvious to arrive at the particular porosity and permeability of the gas distribution layer in the manner as claimed. In support of this position, Applicants note that competing parameters/variables (such as gas permeability, compressive yield strength, contact resistivity, bulk resistivity, and material density, as well as average pore size and void fraction) effect the overall performance of a given design. As discussed in detail at paragraphs 0046-0050, the present invention provides a balanced solution in which these parameters/variable are adjusted to result in an improved gas distribution layer. For example, Cipollini does not disclose a preferred void fraction gas permeability, compressive yield strength, contact resistivity, bulk resistivity, and material density. Moreover, the preferred pore size is the orders of magnitude different from that disclosed in the present application. In view of the foregoing amendments and remarks, reconsideration and withdrawal of the prior art rejections is respectfully requested.

ALLOWABLE SUBJECT MATTER

In the Office Action Summary, the Examiner indicates that claims 1-19 are rejected. However, nowhere in the Office Action is a rejection of claims 8 and 11-12 made. Applicants respectfully submit that these claims are also in condition for allowance and request that the Examiner acknowledge same.

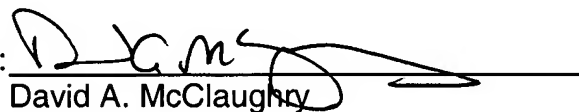
CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: June 2, 2004

By:


David A. McClaughry
Reg. No. 37,885

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

LDES/DAM/pal